

Course Number and Name	
BGE003 – NEW AND RENEWABLE SOURCES OF ENERGY	
Credits and Contact Hours	
3&45	
Course Coordinator's Name	
Mr.Golden Renjith Nimal	
Text Books and References	
TEXTBOOK:	
1. 1. Rai,G.D. Non – Conventional Sources of Energy, Khanna publications, 4 th edition 2004	
2. Le Gouries.D, Wind Power Plants, Theory and Design –permagon press,1982.	
REFERENCES:	
1.David M.Eggleston and Forrest S.Stoddard,Wind Turbine Engineering Designing- Van Noustrand 1987	
2.F.S.seiler, Alternate Energy Vehicle Information, Wind Book Inc.,1977	
3. Barbara Keiler, Energy Alternatives,Luscentr Books,1990	
4. T.Nejat Veziroygal, Alternative Energy Sources-III,Hemisphre Publishing co.,1989.	
5. www.studynama.com/.../357-Renewable-energy-sources-ebook-pdf-lect..	
Course Description	
The students can able to identify the new methodologies / technologies for effective utilization of renewable energy sources.	
Enhance knowledge on solar and wind energy.	
Get aware about different solar energy storage	
Learn about biomass	
Will gain knowledge on sources of energy	
Will understand power generation	
Prerequisites	Co-requisites
Basic Mechanical Engineering	
required, elective, or selected elective (as per Table 5-1)	
Non Major elective	
Course Outcomes (COs)	
CO1	the students can able to identify the new methodologies / technologies for effective utilization of renewable energy sources.
CO2	Enhance knowledge on solar and wind energy.
CO3	Get aware about different source of renewable energy.

CO4	Learn various sources of energy
CO5	Will gain knowledge on energy management
CO6	Will understand the importance of saving fuels

Student Outcomes (SOs) from Criterion 3 covered by this Course

COs/SOs	a	b	c	d	e	f	g	h	i	j	k	l
CO1	L											
CO2	L						H			H	H	H
CO3	L		M	M			H	L		H	H	H
CO4				M				L		H	H	H
CO5				M			H			H	H	H
CO6							H			H	H	H

List of Topics Covered

UNIT I WIND ENERGY	9
Introduction-Location of Wind Generators-Types of Windmills-Induction and Synchronous Systems	
UNIT II SOLAR ENERGY	9
Principle of Conversion of Solar Radiation into Heat, Types of Solar Thermal Collectors- Flat Plate And Concentrating Collectors(Parabolic, Trough, Minor Strip, Fresnel Lens and Compound Parabolic Concentrator), Comparison of Collectors, Selective Absorber Coatings, Solar Thermal Power Plant	
UNIT III SOLAR ENERGY STORAGE AND APPLICATION	9
Solar energy storage systems- thermal, electrical, chemical, mechanical and electromagnetic, solar pond. Application of solar energy- solar thermoelectric conversion- solar photo voltaics, solar heating and cooling of buildings, solar distillation, solar pumping and solar cookers. System of solar cell power plant- direct grid connection through electronic control devices	
UNIT IV BIO- MASS	9
Sources Of Bio-Mass Energy- Wood And Agricultural Waste- Municipal Waste- Animal Waste- Energy Conservation Systems- Biogas Generation From Animal Waste- Wood Gasification-Downdraft And Fluidized Bed Systems- Alcohol Fuels	
UNIT V OTHERSOURCES	9
Wave Energy- Scope and Simple Systems for Power Generation, Tidal Power- Scope and Applications, Otec- Scope, Fundamental Principles and Operating System for Power Generation	